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| 09/619,279 | 07/19/2000 | Ikuo Nakano | 49975(904) | 2217 |
| 21874 | 7590 | 05/12/2004 | EXAMINER | |
| EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205 | | | BATTAGLIA, MICHAEL V | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2652 | 8 |

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding..

Office Action Summary

Application No.

09/619,279

Applicant(s)

NAKANO, IKUO

Examiner

Michael V Battaglia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-19, 22-29, 31-36 and 38-40 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-11, 20, 21, 30 and 37 is/are rejected.
- 7) ☐ Claim(s) 12-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This action, dated May 4, 2004, is in response to Applicant's amendment, filed February 26, 2004. Claims 1-7 and 9-40 are pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. On line 15 of claim 37 recites the limitation "said curved surface." Each of the plurality of lenses claimed has a curved surface. Therefore, it is unclear which curved surface has a lower reflectivity than the reflectivity of the reflecting part. Further, it is unclear how a reflectivity can be higher than a curved surface. The examiner will interpret the claimed reflecting part as reflecting light within a predetermined waveband with a reflectivity higher than that of the curved surface of the lens having the reflecting part in the prior art rejection of the claim below.

Claim Rejections - 35 USC § 102

2. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Jeon (US 5,742,383).

Jeon discloses a lens comprising a plane surface whose normal direction virtually conforms to an optical axis direction (Fig. 2, elements 10 and 12), said plane surface being provided with a reflecting part for reflecting only light within a predetermined waveband (Col. 3, lines 46-54). The examiner notes that the filter (Fig. 2, element 31) transmits only light of a predetermined

wavelength; thus the reflecting part is provided for reflecting only light within a predetermined waveband.

3. Claims 10 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Shoji et al (hereafter Shoji) (US 6,057,969).

In regard to claim 10, none of the references of record alone or in combination disclose or suggest an optical pickup device comprising: a plurality of lenses (Fig. 1, elements 10 and 13) disposed along an optical axis, one direction along said optical axis being a forward direction and the other direction along said optical axis being a backward direction, each of said plurality of lenses (a) being larger in diameter than the lenses disposed forwardly along said optical axis relative thereto (Fig. 1), and (b) having a plane surface on a surface thereof that faces in said forward direction (Fig. 1, element 13a and plane surface on the outer circumference of element 10), said plane surface being disposed virtually perpendicular to said optical axis (Fig. 1) and being capable of reflecting light entering from a front side thereof (Col. 3, lines 56-61). The plane surface of lens element 10 is interpreted as being capable of reflecting light entering from a front side thereof just as the plane surface 13a of lens element 13 is capable of reflecting light entering from a front side thereof.

In regard to claim 37, Shoji discloses an optical pickup device, comprising: a plurality of lenses disposed along an optical axis (Fig. 1, elements 10 and 13), one direction along the optical axis being a forward direction and the other being a backward direction, each successive backwardly disposed one from a front one (Fig. 1, element 13) of said plurality of lenses being larger in diameter than the lens immediately in front of it (Fig. 1), each of said plurality of lenses having (i) a plane surface on a surface thereof that faces in the forward optical axis direction (Fig. 1, element 13a and plane surface on the outer circumference of element 10), said plane surfaces each

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being disposed virtually perpendicular to the optical axis, and (ii) a curved surface having a function as a lens (Fig. 1, surface of element 13 opposite surface 13a and curved surface on either side of element 10), at least one of the plurality of lenses having a reflecting part (Fig. 1, element 13a), and the reflecting part reflecting light within a predetermined waveband with reflectivity higher than said curved surface (Col. 3, lines 56-61).

Claim Rejections - 35 USC § 103

4. Claims 1-4, 9, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al (hereafter Okuda) (US 5,883,709) in view of Katayama (US 5,875,167).

In regard to claim 1, Okuda discloses a lens comprising: a curved surface having a function as a lens (Figs. 5-6, element 2), a plane surface disposed in a virtually perpendicular direction to an optical axis (Figs. 5-6, element 3), and a reflecting part which is disposed on said plane surface and reflects light within a predetermined waveband with reflectivity higher than said curved surface (Figs. 5-6, element 3 and Col. 6, lines 3-6). Okuda does not disclose that the reflecting part transmits light outside the waveband.

Katayama discloses a reflecting part which is disposed on a plane surface, reflects light within a predetermined waveband with reflectivity higher than the surface inside the reflecting part on the plane surface, and transmits light outside the waveband (Col. 16, lines 57-62 and Figs. 17A and 17B, elements 43-44 and 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the reflecting part that transmits light outside the predetermined waveband into the lens of Okuda as suggested by Katayama, the motivation being to provide a numerical aperture for the light outside the waveband large enough to provide a light beam of the

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correct size for the optical information medium that is read from and/or written to with the light outside the predetermined waveband as taught by Katayama (Col. 17, lines 1-8).

In regard to claim 2, Okuda discloses that reflecting part is formed so as to cover said plane surface and said curved surface (Fig. 6).

In regard to claim 3, Katayama discloses that the reflecting part includes at least one dielectric film (Figs. 17A and 17B, element 44).

In regard to claim 4, Katayama discloses that the reflecting part includes an SiO₂ film (Figs. 17A and 17B, element 43).

In regard to claim 9, Okuda in view of Katayama discloses an optical pickup device comprising a lens including: a curved surface having a function as a lens, a plane surface disposed in a virtually perpendicular direction to an optical axis, a reflecting part which is disposed on said plane surface, reflects light within a predetermined waveband with reflectivity higher than said curved surface, and transmits light outside the waveband (see claim 1).

In regard to claim 20, Okuda discloses the method for detecting lens inclination, said lens including: a curved surface having a function as a lens, a plane surface disposed in a virtually perpendicular direction to an optical axis, and a reflecting part which is disposed on said plane surface, reflects light within a waveband with reflectivity higher than said curved surface, and transmits light outside the waveband (see claim 1), said method comprising: a step 'a' of emitting light for detecting inclination to said lens (Fig. 5); and a step 'b' of detecting a position of a condensing spot formed by light reflected from said reflecting part (Figs. 5 and 8).

In regard to claim 21, Okuda discloses that in the step 'a', the light for detecting inclination is not emitted to the curved surface but only to the plane surface and the reflecting surface (Fig. 1).

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5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda in view of Katayama as applied to claim 1 and in further view of Imai (US 5,283,600).

Okuda in view of Katayama discloses the lens as claimed in claim 1 that includes a reflecting part. Okuda in view of Katayama does not disclose that the reflecting part includes an aluminum film and a dielectric film which is provided thereon.

Imai discloses a dielectric film on an aluminum film and teaches that applying the dielectric film on top of the aluminum film will increase reflectance.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a dielectric film stacked on the aluminum film in the lens of Okuda in view of Katayama as suggested by Imai, the motivation being to increase reflectance from the reflecting part of the lens.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jeon in view of Okuda.

Jeon discloses the lens as claimed in claim 6. Furthermore, Jeon discloses that the plane surface is formed at a circumference of the lens, that the reflecting part is formed on the plane surface, and lens functioning section acting as a lens at the inner radius of the plane surface. Jeon does not disclose that the reflecting part is formed on the surface of the lens functioning section as well as on the plane surface.

Okuda discloses a plane surface that is formed at a circumference of a lens (Figs. 5-6, element 3), a lens functioning section acting as a lens at an inner radius of said plane surface (Figs. 5-6, element 2), and a reflecting part that is formed on a surface of a lens functioning section as well as on said plane surface (Figs. 6). Okuda teaches that size of the image produced by emitting light to the entire area of the lens will be small enough for accurate detection of lens inclination

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and the problem of inaccurate detection of lens inclination due to the wide beam spot produced from the reflection of light off of a small part of the microscopically uneven reflecting part of the lens shown in Fig. 1 can be overcome (Col. 2, lines 17-24; Col. 3, lines 32-35; and Col. 7, lines 34-38).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the reflecting part on the surface of the lens functioning section as well as on the plane surface of Jeon as suggested by Okuda, the motivation being to accurately detect the inclination of the lens by producing a sufficiently small image from the light reflected from the lens.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji in view of Nomura.

Shoji discloses an optical pickup device as claimed in claim 10, wherein each said lens includes a curved surface having a function as a lens (Fig. 1, elements 10 and 13) and a lens including a reflecting part on said plane surface (Fig. 1, element 13 and 13a). Shoji does not disclose that said reflecting part reflects light within a predetermined waveband with reflectivity higher than said curved surface.

Nomura discloses a lens that includes curved surface having a function as a lens and a reflecting part on a plane surface, wherein said reflecting part reflects light within a predetermined waveband with reflectivity higher than said curved surface (Fig. 2, elements 1-4 and Col. 4, lines 9-13). The examiner notes that the reflecting part reflects light of any wavelength with reflectivity higher than the curved surface.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the lens of Shoji (Fig. 1, element 13) with the lens of Nomura, the

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motivation being that the lens of Nomura will allow more light through the curved surface than the lens of Shoji, while still reflecting light to detect the inclination of the lens.

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jeon in view of Ichiura et al (hereafter Ichiura) (US 5,708,635).

Jeon discloses a method for detecting lens inclination, in which parallel light is emitted to a lens and inclination of the lens is detected based on light reflected therefrom, said lens including a plane surface at least at a circumference thereof and a lens functioning section acting as a lens at an inner radius of said plane surface, said plane surface having a normal direction virtually conforming to an optical axis direction. Jeon does not disclose preventing parallel light from entering a lens functioning section by using a light-shielding member.

Ichiura discloses preventing parallel light from entering a lens functioning section by using a light-shielding member and teaches that shielding parallel light from entering a lens functioning section will generate ultra-resolution and lessen the size of the beam spot (Fig. 8, elements 52-53 and Col. 1, lines 40-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the step of preventing parallel light from entering a lens functioning section by using a light-shielding member in the method for detecting lens inclination of Jeon as suggested by Ichiura, the motivation being to generate ultra-resolution and lessen the size of the beam spot.

Allowable Subject Matter

9. Claims 12-19, 22-29, 31-36, and 38-40 are allowable over the prior art of record.

Independent claims 22 and 31-34 and dependent claims 12-15 contain allowable subject matter for the reasons stated in the previous Office action.

Claims 12-15 are objected to as being dependent upon a rejected base claim.

In regard to claim 16, none of the references of record alone or in combination disclose or suggest an optical pickup device, which emits a light beam condensed by combined lenses to an optical recording medium, wherein **a plurality of lenses** constituting the combined lenses **each have a plane surface** on a surface thereof, **that faces an optical recording medium** at a circumference of said lens, **said plane surface** (a) having a normal direction virtually conforming to an optical axis, and (b) being capable of reflecting light that enters into the surface that faces said optical recording medium, wherein a reflecting part is formed on at least said plane surface of one or more of said plurality of lenses, **said reflecting part increasing reflectivity of at least specific light received from the direction of the optical recording medium**, and wherein said lenses of said plurality of lenses successively increase in outer diameter from a smallest diameter closest to said optical recording medium to a largest diameter furthest from said optical recording medium.

In regard to claim 28, none of the references of record alone or in combination disclose or suggest a method for detecting lens inclination, that detects inclination of combined lenses including a plurality of lenses, comprising the steps of: **emitting parallel light to each of said plurality of lenses and detecting inclination of said combined lenses based on light reflected therefrom**, the plurality of lenses being disposed along an optical axis having a forward direction and a backward direction therealong, **each of said plurality of lenses** (a) being larger in diameter than any of the ones of said plurality of lenses disposed forwardly with respect thereto along said

optical axis, and (b) **having a plane surface on a surface** thereof, said plane surface facing forwardly relative to said optical axis, being virtually perpendicular thereto and being **capable of reflecting light impinging thereon**.

Response to Arguments

10. Applicant's arguments, see pages 21 and 22, filed February 26, 2004, with respect to the rejection of claim 6 have been fully considered but they are not persuasive. Applicant argues that the lens of Jeon does not include a reflecting part for reflecting **only** light within a predetermined wavelength. However, the reflecting part (Fig. 2, element 12) of the lens (Fig. 2, element 10) of Jeon is for reflecting only light within a predetermined wavelength because only light within a predetermined wavelength passes through the filter (Fig. 2, element 31) and reaches the reflecting part. No response will be provided regarding unclaimed features of Applicant's invention because the features upon which applicant relies (i.e., ensuring transmittance of reproducing and recording light, preventing the occurrence of stray light, and the degree to which the lens inclination detection is accurate) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

11. Applicant's arguments, see pages 22 and 23, filed February 26, 2004, with respect to the rejection of claims 10 and 11 have been fully considered but they are not persuasive. Applicant Shoji does not disclose that **each** of the plurality of lenses has a plane surface for reflecting light that enters into a lens from a front side thereof. However, in claim 10, it is not claimed that the plane surface on each of the plurality of lenses is **for** reflecting light that enters into a lens from a front side thereof. Instead, the plane surface on each of the plurality of lenses is only limited to

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being **capable of** reflecting light that enters into a lens from a front side thereof. The plane surface of rear lens (Fig. 1, element 10) is interpreted as being capable of reflecting light entering from a front side thereof just as the plane surface (Fig. 1, element 13a) of front lens (Fig. 1, element 13) is capable of reflecting light entering from a front side thereof.

12. Applicant's arguments, see page 24, filed February 26, 2004, with respect to the rejection of claims 1-5, 9, and 20-21 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., light for detecting inclination is not emitted to curved surface and only to the plane and reflecting surfaces, the degree of accuracy to which the reflecting part detects lens inclination, and prevention of stray light in the device) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the reflecting part of Katayama is for controlling aperture size and is totally different from the detection of lens inclination, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Further, despite Applicant's unsupported allegation to the contrary, Okuda in view of Katayama discloses a reflecting part for reflecting light within a predetermined waveband with high reflectivity while allowing the transmission of light outside the waveband as noted above when the

reflecting part of Katayama (Col. 16, lines 57-62 and Figs. 17A and 17B, elements 43-44 and 46) is added to the lens, optical pickup device, and method of detecting lens inclination of Okuda.

13. Applicant's arguments, see page 24, with regard to the rejection of claim 7 fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Applicant groups the discussion of items 10-12 together. Item 12 is the rejection of claim 7 under 35 USC 103(a) reference as being unpatentable over Jeon in view of Okuda. While Applicant supports the traversal of items 10 and 11 by providing arguments relating to Okuda in view of Katayama, no support is provided relating to Jeon in view of Okuda and the language or limitations of claim 7 are not mentioned

14. Applicant's arguments, see pages 25 and 26, filed February 26, 2004, with respect to the rejection of claim 30 have been fully considered but they are not persuasive. Applicant argues that a prima facie combination of Jean and Ichiura has not been presented. However, as shown above, Jean in view of Ichiura discloses every limitation of claim 30 and the motivation to combine has been provided. The references are analogous because Jean discloses a method and apparatus for detecting lens inclination of an objective lens in an optical pickup and Ichiura discloses an optical pickup having an objective lens. Therefore, a prima facie combination of Jean and Ichiura has not been presented.

In response to applicant's argument that the light shielding plate of Ichiura is provided for generating ultra resolution, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of

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performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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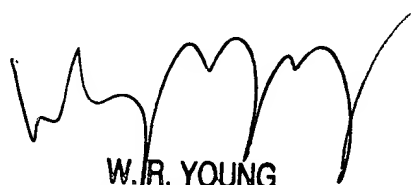
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Battaglia whose telephone number is (703) 305-4534. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Battaglia



W.R. YOUNG
PRIMARY EXAMINER